Having described the invention, we claim:

1. An apparatus for replacing a damaged spinal disc in a spinal column, said apparatus comprising:

an artificial disc, said artificial disc including a resilient core having a first surface and a second surface, a first retaining member connected to said first surface of said resilient core, and a second retaining member connected to said second surface of said resilient core, said first retaining member having an outer surface engageable with a first vertebra of the spinal column and an inner surface facing said first surface of said resilient core, said second retaining member having an outer surface engageable with a second vertebra of the spinal column and an inner surface facing said second surface of said resilient core; and

a first mounting member connectable with the first vertebra and said artificial disc to position said artificial disc between the first and second vertebrae, said first mounting member being engageable with said artificial disc after being connected to the first vertebra to guide movement of said artificial disc into position between the first and second vertebrae.

2. An apparatus as defined in claim 1 wherein one of said first retaining member and said first mounting member includes a guide engageable with another of said first retaining member and said first mounting member to guide movement of said first retaining member into position between the first and second vertebrae.

3. An apparatus as defined in claim 2 wherein said first retaining member includes said guide engageable with said first mounting member.

4. An apparatus as defined in claim 3 wherein said guide extends from said outer surface of said first retaining member and is engageable with the first vertebra.

5. An apparatus as defined in claim 1 wherein one of said first retaining member and said first mounting member includes first and second guides engageable with another of said first retaining member and said first mounting member to guide movement of said first retaining member into position between the first and second vertebrae.

6. An apparatus as defined in claim 5 wherein said first retaining member includes said first and second guides engageable with said first mounting member, said first and second guides extending generally parallel to each other.

7. An apparatus as defined in claim 1 wherein one of said first retaining member and said first mounting member includes a stop engageable with another of said first retaining member and said first mounting member to prevent relative movement between said first retaining member and said first mounting member in a first direction.

8. An apparatus as defined in claim 7 wherein said first retaining member includes said stop engageable with said first mounting member to prevent relative movement between said first retaining member and said first mounting member in the first direction, said stop guiding movement of said first retaining member relative to said first mounting member in a second direction extending transverse to the first direction.

9. An apparatus as defined in claim 1 wherein one of said first retaining member and said first mounting member includes a guide engageable with another of said first retaining member and said first mounting member to guide movement of said first mounting member into an opening in said first retaining member.

10. An apparatus as defined in claim 1 wherein said first retaining member has an opening extending through said inner and outer surfaces of said first retaining member, said first mounting member extending into said opening.

11. An apparatus as defined in claim 10 wherein said opening extends axially through said inner and outer surfaces of said first retaining member.

12. An apparatus as defined in claim 1 wherein said first mounting member is engageable with a surgical tool for connecting said first mounting member to the first vertebra.

13. An apparatus as defined in claim 12 wherein said first mounting member includes a recess into which a portion of said surgical tool extends for connecting said first mounting member to the surgical tool.

14. An apparatus as defined in claim 1 wherein, said first mounting member includes an inner surface facing said core and spaced from said core, said core deflecting into engagement with said inner surface of said first mounting member upon relative movement between said first and second retaining members.

15. An apparatus as defined in claim 14 wherein said inner surface of said first mounting member is concave.

16. An apparatus as defined in claim 1 wherein said first mounting member is prevented from moving relative to said artificial disc when said first mounting member is connected to said artificial disc.

17. An apparatus as defined in claim 16 wherein said first mounting member is connected to said artificial disc with an interference fit.

18. An apparatus as defined in claim 17 wherein said first mounting member has a frustoconical surface engageable with a frustoconical surface on said artificial disc.

19. An apparatus as defined in claim 1 further including a second mounting member connectable with the second vertebra and said artificial disc to position said artificial disc between the first and second vertebrae, said second mounting member being engageable with said artificial disc to guide movement of said second retaining member into position between the first and second vertebrae.

20. An apparatus as defined in claim 19 wherein one of said first retaining member and said first mounting member includes a first guide engageable with another of said first retaining member and said first mounting member to guide movement of said first retaining member into position between the first and second vertebrae, one of said second retaining member and said second mounting member including a second guide engageable with another of said second retaining member and said second mounting member to guide movement of said second retaining member into position between the first and second vertebrae.

21. An apparatus as defined in claim 20 wherein said first retaining member includes said first guide engageable with said first mounting member,

said second retaining member including said second guide engageable with said second mounting member.

22. An apparatus as defined in claim 21 wherein said first guide extends from said outer surface of said first retaining member and is engageable with the first vertebra, said second guide extending from said outer surface of said second retaining member and being engageable with the second vertebra.

23. An apparatus as defined in claim 19 wherein one of said first retaining member and said first mounting member includes first and second guides engageable with another of said first retaining member and said first mounting member to guide movement of said first retaining member into position between the first and second vertebrae, one of said second retaining member and said second mounting member including third and fourth guides engageable with another of said second retaining member and said second mounting member to guide movement of said second retaining member into position between the first and second vertebrae.

24. An apparatus as defined in claim 23 wherein said first retaining member includes said first and second guides engageable with said first mounting member, said first and second guides extending generally parallel to each other, said second retaining member including said third and fourth

guides engageable with said second mounting member, said third and fourth guides extending generally parallel to each other.

25. An apparatus as defined in claim 19 wherein one of said first retaining member and said first mounting member includes a first stop engageable with another of said first retaining member and said first mounting member to prevent relative movement between said first retaining member and said first mounting member in a first direction, one of said second retaining member and said second mounting member including a second stop engageable with another of said second retaining member and said second mounting member to prevent relative movement between said second retaining member and said second mounting member in the first direction.

26. An apparatus as defined in claim 25 wherein said first retaining member includes said first stop engageable with said first mounting member to prevent relative movement between said first retaining member and said first mounting member in the first direction, said first stop guiding movement of said first retaining member relative to said first mounting member in a direction extending transverse to the first direction, said second retaining member including said second stop engageable with said second mounting member to prevent relative movement between said second retaining member and said second mounting member in the first direction, said second stop guiding movement of said second retaining member relative to said second mounting member in a direction extending transverse to the first direction.

27. An apparatus as defined in claim 19 wherein one of said first retaining member and said first mounting member includes a first guide engageable with another of said first retaining member and said first mounting member to guide movement of said first mounting member into an opening in said first retaining member, one of said second retaining member and said second mounting member including a second guide engageable with another of said second retaining member and said second mounting member to guide movement of said second mounting member into an opening in said second retaining member.

28. An apparatus as defined in claim 19 wherein said first retaining member has an opening extending through said inner and outer surfaces of said first retaining member, said first mounting member extending into said opening in said first retaining member, said second retaining member having an opening extending through said inner and outer surfaces of said second retaining member, said second mounting member extending into said opening in said second retaining member.

29. An apparatus as defined in claim 28 wherein said opening in said first retaining member extends axially through said inner and outer surfaces of said first retaining member, said opening in said second retaining member extending axially through said inner and outer surfaces of said second retaining member.

30. An apparatus as defined in claim 19 wherein said first mounting member includes an inner surface facing said core and spaced from said core, said core deflecting into engagement with said inner surface of said first mounting member upon relative movement between said first and second retaining members, said second mounting member including an inner surface facing said core and spaced from said core, said core deflecting into engagement with said inner surface of said second mounting member upon relative movement between said first and second retaining members.

31. An apparatus as defined in claim 30 wherein said inner surface of said first mounting member is concave, said inner surface of said second mounting member being concave.

32. An apparatus as defined in claim 19 wherein said first and second mounting members are prevented from moving relative to said artificial disc when said first and second mounting members are connected to said artificial disc.

33. An apparatus as defined in claim 32 wherein said first and second mounting members are connected to said artificial disc with interference fits.

34. An apparatus as defined in claim 33 wherein said first and second mounting members have frustoconical surfaces engagable with frustoconical surfaces on said artificial disc.

35. An apparatus as defined in claim 1 wherein said core includes a radially outer surface extending between said first and second surfaces of said core, said radially outer surface facing a portion of one of said first and second retaining members, said radially outer surface being spaced from said portion of said one of said first and second retaining members, said core deflecting into engagement with said portion of one of said first and second retaining members upon relative movement between said first and second retaining members.

36. An apparatus as defined in claim 35 wherein said radially outer surface of said core faces a portion of said first retaining member, said radially outer surface of said core being spaced from said portion of said first retaining member, said core deflecting into engagement with said portion of said first retaining member upon relative movement between said first and second retaining members, said radially outer surface facing a portion of said second retaining member, said radially outer surface being spaced from said portion of said second retaining member, said core deflecting into engagement with said portion of said second retaining member upon relative movement between said first and second retaining members.

37. An apparatus as defined in claim 1 wherein one of said first and second retaining members includes a flange extending toward another of said first and second retaining members, said flange having a radially inner surface facing said core and spaced from said core, said core deflecting into engagement with said radially inner surface upon relative movement between said first and second retaining members.

38. An apparatus as defined in claim 37 wherein said first retaining member includes said flange extending toward said second retaining member, said core deflecting into engagement with said radially inner surface of said flange upon relative movement between said first and second retaining members, said second retaining device including a flange extending toward said first retaining member, said flange of said second retaining device having a radially inner surface facing said core and spaced from said core, said core deflecting into engagement with said radially inner surface of said flange of said second retaining member upon relative movement between said first and second retaining members.

39. An apparatus as defined in claim 1 wherein said inner surface of said first retaining member is concave, said first surface of said resilient core being convex.

40. An apparatus as defined in claim 39 wherein said inner surface of said second retaining member is concave, said second surface of said resilient core being convex.

41. An apparatus as defined in claim 1 wherein said first retaining member includes a portion engageable with a surgical tool for inserting said artificial disc between the vertebrae.

42. An apparatus as defined in claim 41 wherein said second retaining member includes a portion engageable with the surgical tool for inserting said artificial disc between the vertebrae.

43. An apparatus as defined in claim 42 wherein said portion of said first retaining member includes an opening into which a portion of the surgical tool extends.

44. An apparatus as defined in claim 43 wherein said second retaining member includes a portion with an opening into which a second portion of the surgical tool extends.